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Door Control Unit (DCU)
User Manual

Help Version updated till firmware 404p

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1) Introduction

What is the Door Control Unit, or DCU?

The AKCP Door Control Unit is an IP based access controller. Each DCU can control 1 door. User access rights and schedules are programmable through the AKCess Pro Server software. It is scalable, flexible and fully integrated with our diverse product range. With multiple DCU's it is possible to monitor and control access for hundreds or thousands of doors. Being IP based also means that it is suitable for deployment in a multisite situation where there are several buildings city, country or worldwide that require centralized access control management.

Combine the DCU with the CCU or Cabinet Control Unit and control the access for up to 50 server cabinets. See the separate CCU user manual for more information on the CCU.

Please note that the DCU is a stand-alone base unit and does not need to be connected to any other units to function. However The AKCess Pro Server software plays a key role in the overall operation of the management system and must be used. Please see the separate manuals for setting up the access control or other operational details regarding these products.

Please also note that the DCU does have its own firmware imbedded in the unit just like the securityProbe 5ES and 5ESV base units. The DCU's firmware is updated in the same fashion as the 5ES and 5ESV units. Please refer to securityProbe base unit firmware update manual.

AKCP has prided itself on the only company in the world to bring low cost, easy to use complete access control, CCTV security, environmental and power monitoring solutions to market.

How to use this manual

This manual is meant to provide the user with a step by step guide on how to configure and set up their DCU. It utilizes screen shots in an effort to make things simpler for the user to follow. It is split up into sections that form "mini tutorials". These cover the basic set up and common configurations of the unit, and give an introduction to its most useful features.

At the end of the manual there is a FAQ section that provides some further in-depth information regarding specific set ups and answers some commonly asked questions. If you need any further information or help with using your unit then please contact us on support@akcp.com and one of our technical support staff will be only to pleased to help you with any information you require.

2) Package Contents

Your Door Control Unit package contains the following items:-

- 1x Product CD
- 1x 5ft Crossover cable + 1 x 10ft Straight through cable
- 1 x Lock Converter Box
- 1x 12V, 3 Amp power supply
- 2x Brackets for rack mounting

3) DCU Front and rear panels

Fig 1. Front panel

The front panel has several LEDs which display the DCU's status and notify you as to its activity.

1. **Power LED**

   When the unit is powered up the power LED will be lit continuously.

2. **Ethernet LED**

   Activity LED indicates the activity of the Ethernet port. Link indicates whether the Ethernet link is 100 or 10 MBits/s

3. **Sensors LED's**

   The Sensors LED's indicates Error status and Online status of the 2 sensors ports.

4. **Door LED's**

   The Door LED's represent the status of the door:
   - DS = Door status : always ON when door is closed, BLINK when door is opened, or is held open, and FAST BLINK when door is forced open. (After v404p FWare)
   - Exit = Exit Status: Turns OFF when exit is requested
   - Lock = Door Relay status: Is ON when the relay is closed and BLINKS when the relay is open.
   - TP = Tamper status: is ON when the status is normal and BLINKS when the status is critical.

5. **SD Card slot**

   This slot is provided so you are able to add your own SD flash card to increase the storage space on the unit. You can install up to a 16GB SD card.

   The on board memory on the DCU is 128MB. This is where the operating system, sensor data, the unit's settings, picture and sound logs are all stored if not stored on the AKCess Control Server.

   If the picture and sound logs become full they will then begin to be stored on your SD card (if one is installed on the unit) automatically.

6. **Expansion ports**

There are two expansion ports numbered from E1 and E2. These are expansion Ports for connecting either the 8-sensor8 or the E-opto16 expansion units. These are also used for connecting the CCU or Cabinet Control Units. Please see each of these separate user manuals for each of these products.

7. Mic

The mic is a small hole for access to the internal microphone. This can be used as a sound sensor (or an external mic can be used)

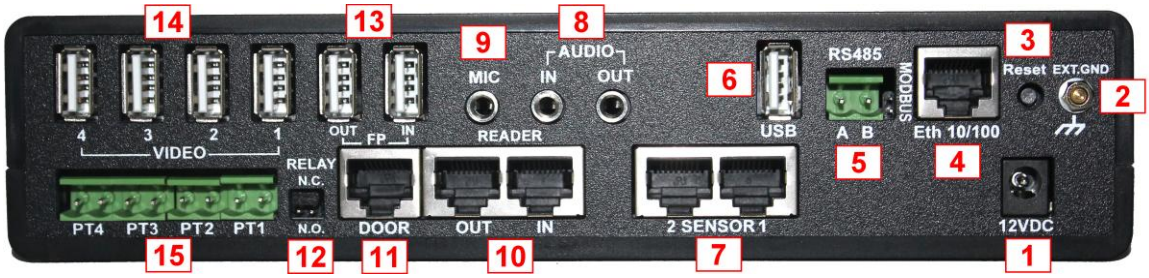


Fig 2. Rear panel

The rear panel of the DCU is home to various ports and connections. The functions of these are as follows :-

1. 12VDC Power Input.

The 12 VDC power supply is connected to this input.

2. EXT GND

The External Ground is an option if you need to add an external ground connection to the unit.

3. Safe Mode button. *(DOES NOT RESET THE UNIT)*

The black tact switch button is used to perform the following functions

A. A single press will announce the IP address of the unit. This is audible through the internal speaker. It also broadcasts the IP address to the IPset program.

B. Turns off password checking when accessing the web based interface (hold down for 12 seconds)

C. To reboot the unit into the firmware upgrade or “SAFE” mode press and hold in the button for more than 12 seconds.

4. Ethernet.

This RJ-45 connector is used for connecting the DCU to Ethernet network.

5. RS485 Port & 120Ohm Jumper

Used for Modbus connectivity. We support Modbus master or slave. When using the DCU as a slave and the unit is the last device in the Modbus string the jumper (120 Ohm resister) needs to be jumpered at this connection.

6. **USB Port**

   The unit is equipped with one USB 1.1 port. This can be used, for example, to connect a USB GPRS/GSM compatible modem, a USB WiFi dongle or USB Bluetooth dongle.

7. **Sensor Ports**

   These 2 RJ45 connector are for connecting the AKCP Intelligent Sensors to the DCU.

8. **Audio IN / OUT**

   The IN is used to connect an external microphone, the OUT is for external speakers. Or to connect the audio cable for the GSM modem when sending voice call alerts.

9. **MIC**

   This is used to connect an external microphone for voice modem applications.

10. **Reader**

    These 2 RJ45 connectors are for connecting the Access Control card readers to the DCU. Ports IN and OUT are assigned to the Door.

11. **DOOR**

    This RJ-45 connector is for connecting the Lock Converter Box or the Door Lock to the DCU. See below for details covering the Lock Converter Box.

12. **Relay**

    This jumper is for configuring the Door Lock relay to NC (Normally Closed) or NO (Normally Open). ***NOTE:*** **The Relay feature on the lock is not currently available. This may be added at a later date.**

13. **FP**

    These 2 USB connectors are for connecting the Fingerprint readers.

14. **Video**

    These 4 USB connectors are for connecting the High Definition Digital cameras. The rule is **ONLY** use 2 cameras if you're going to use 2 Finger Print readers and use 4 cameras if not using the 2 Finger Print readers.

15. **High Definition Digital Pan Tilt Dome Controller Inputs**

    This is where you would connect each of the PTDC pan tilt controller cable inputs.

4) Access Control Components

A) Fingerprint Reader = FPR01

Notes: You cannot enroll your fingerprints into the system with the finger print reader connected to the DCU.
You will need to add your finger prints into the AKCess Pro Server, Access Control with the finger print reader connected to the machine that the server software is installed on.

B) EM Card Reader = ACR04

Notes: The Electro Magnetic Card Readers are weather proof and designed to be mounted outside or inside of your doors to swipe your EM cards to gain entry and also clock in and out of the Access Control system.

C) EM Door Lock = ACDL01

Notes: The Electro Magnetic Door Locks are mounted on your door to control access. Because every door will be different normally an additional custom made mounting bracket will be required in most cases.

D) EM Cabinet Lock = ACDL02

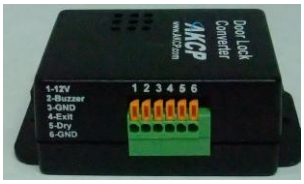
Notes: The "mini" EM Door Lock is designed to be used with the CCU or Cabinet Controller Unit. See more on this lock in the CCU User Manual.

E) External Lock Override = ADCL10

Notes: The External Lock Override is mandatory for all Doors that are controlled by the DCU. The secure over ride is controlled with a key and cuts the power to door lock in case of a power failure or other problem.

F) Infrared Sensor Exit Button = ACDB09

Notes: This Stainless Steel, Infrared door release button can be used as a general exit release button or as an emergency release switch.



G) Lock Converter Box

Notes: The Lock Converter Box controls the signals to the door lock, the IR Exit Button, a remote exit button, an external buzzer and the external lock override (see the diagram on page #10). The remote exit button and external buzzer are not supplied by AKCP.

5) Installation

Important Note: *It is highly suggested that a professional locksmith or lock installer be used when installing the locks and other access control equipment.*

Fail Safe Type Locks

The Fail Safe type locks would be used in office buildings or where you would not want the doors to remain locked if the power is cut.

A) Overview and Installing the door locks

Electromagnetic Type Door Locks or EM Locks (Fail Safe Type)

Overview

An electromagnetic lock, magnetic lock, or maglock is a locking device that consists of an electromagnet and an armature plate. By attaching the electromagnet to the door frame and the armature plate to the door, a current passing through the electromagnet attracts the armature plate, holding the door shut.

Unlike an electric strike a magnetic lock has no interconnecting parts and is therefore not suitable for high security applications because it is possible to bypass the lock by disrupting the power supply. Nevertheless, the strength of the AKCess Pro magnetic locks compares well with that of conventional door locks and they cost less than conventional light bulbs to operate.

We highly recommend using a dedicated UPS to provide backup power to the DCU and to the EM door locks so that in case of a power interruption the doors will remain locked and your security is retained.

Technical comparison

Magnetic locks possess a number of advantages over conventional locks and electric strikes. For example, their durability and quick operation can make them valuable in a high-traffic office environment where electronic authentication is necessary.

Advantages

- Easy to install: Magnetic locks are generally easier to install than other locks since there are no interconnecting parts.

- Quick to operate: Magnetic locks unlock instantly when the power is cut, allowing for quick operation in comparison to other locks.

- Sturdy: Magnetic locks may also suffer less damage from multiple blows than do conventional locks.

Installation Notes and Concerns

Always keep in mind you have to be very accurate when installing these types of EM door locks. You must ensure that the metal armature plates are perfectly flat and aligned against the electro magnet. Otherwise the lock will not function correctly or the doors could be forced open easily.

We suggest the best procedure to follow when installing the locks is to mount the metal armature plate on the door first, then close the door and position the EM on the door frame to make sure it is perfectly aligned.

Another procedure to follow is before mounting the EM side in place, position it, power it up and make sure it holds.

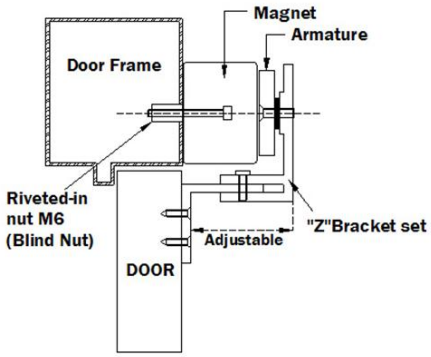
VERY Important Note: *Please keep in mind that it may take up to 5 minutes for the electromagnet to warm up after applying power to it before it will create enough current through the loops of wire (known as a solenoid) to produce the magnetic field which will engage the conductor and hold the* armature *plate in place.*

Then when it is held in place with the magnetic field, mark off on the door frame where it should be mounted and include the screw holes. Then, power it off and mount it into place.

We found in our testing that when mounted if the magnet and metal armature plate were not perfectly aligned then the holding power was greatly reduced and we could easily force open the door. In some instances when installing the EM you may have to insert washers behind the metal lock to push one or the other side out to make it flush with the electro magnet.

Mounting Brackets

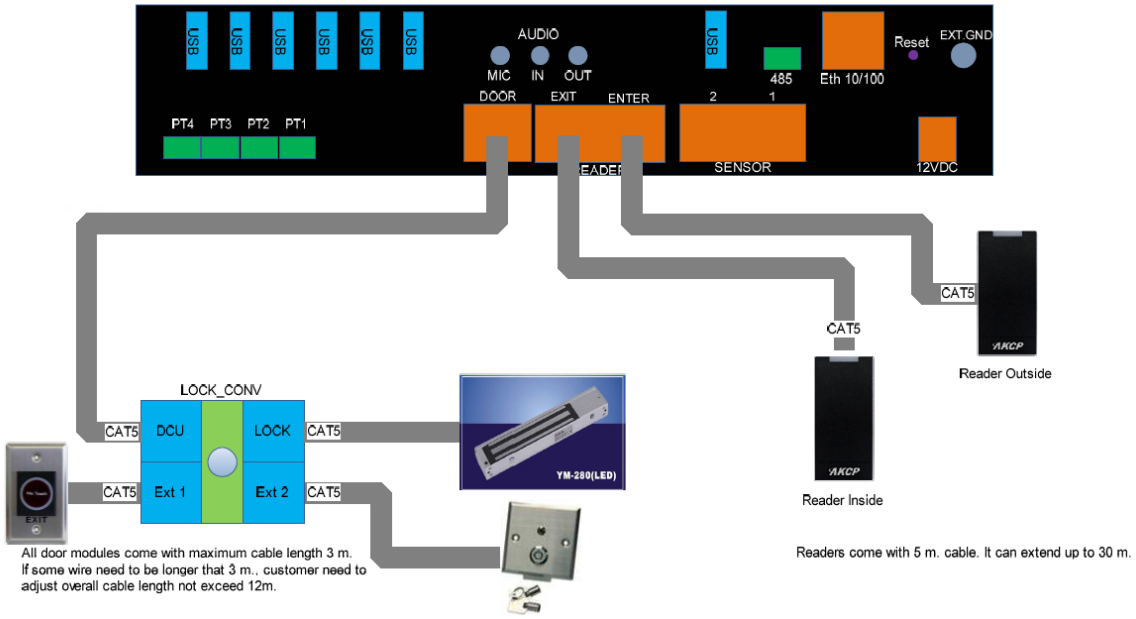
EM Lock and armature plate



Installation Diagram

ACDL01 is pre-wired for the DCU/Lock Box purpose
ACDL02 is pre-wired for the CCU purpose only, it is not strong enough for a door use

SEC-DCU : Door Lock wiring diagram



B) Wiring the DCU with card readers, finger print readers and exit buttons.

External Lock Override

We also ship the DCU with 1 External Key Lock Override so in the event of a problem where the door cannot be opened by a card swipe or some other reason you can use the key switch to override the system and open the door from the outside. What this does, it only cuts the electrical power to the door lock.

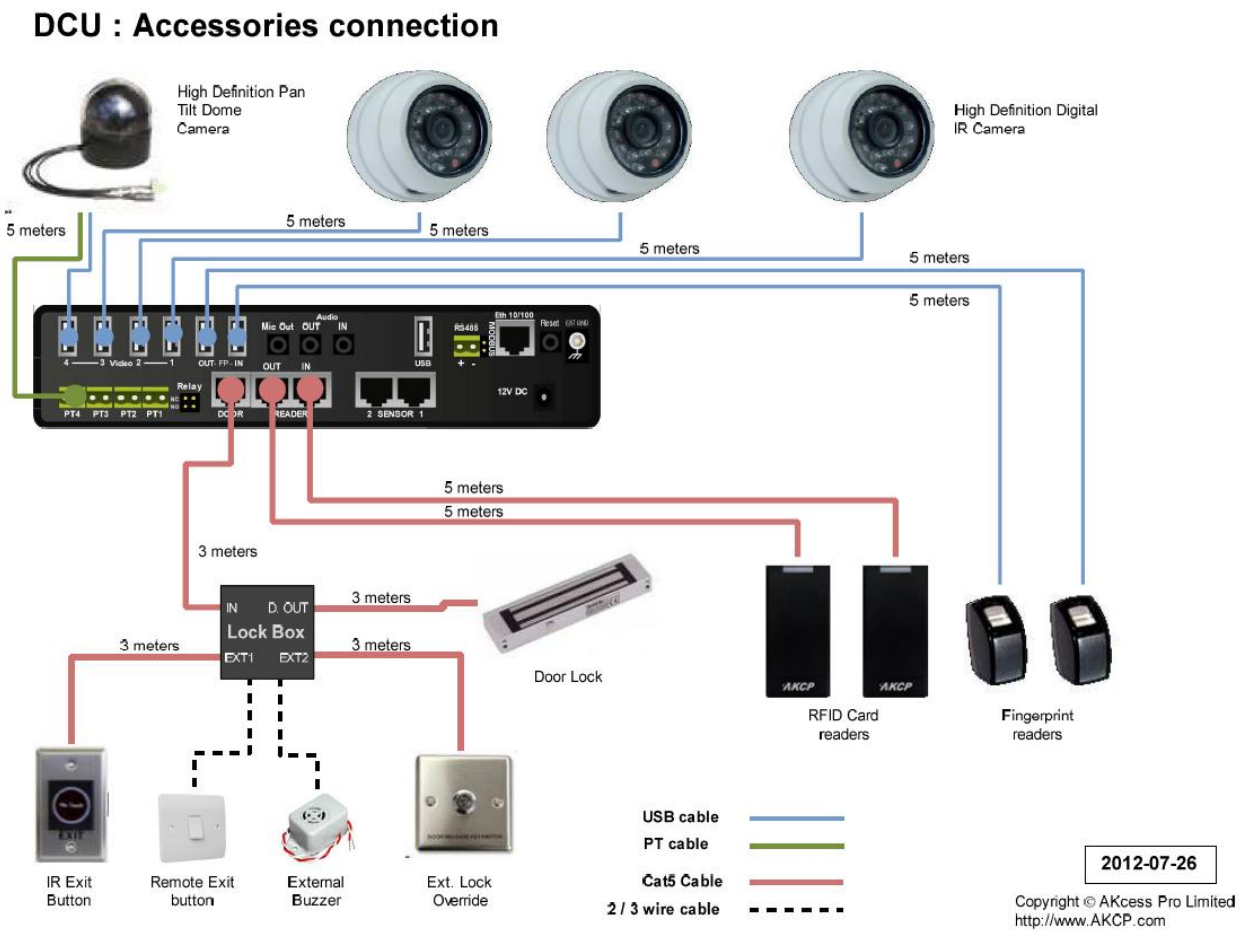
Exit Button with "Kill Switch"

The IR exit button shown in the diagram above and on the next page includes a "Kill Switch" that must be installed along with the card or finger print reader. The Kill Switch will override the power to the door lock allowing for quick exit in an emergency or power failure.

Wiring Sizes and Types

CAT5/6 (Ethernet cable) can be used for all DCU and door accessories. The Door Lock, and Infrared Exit button are pre-wired with 3 meters of cable length while the Card Readers with 5 meters of cable length. The External Lock Override includes the RJ-45 connector for ease of use, a length of 3 meters is recommended.

Important Note: *The External Lock Override is mandatory item that must be included when installing the access control system. AKCess Pro / AKCP will not be responsible for any loss, damages or claims in the event this override switch is not installed or is not installed properly.*



DCU Wiring Diagram and Cable Run Lengths

The diagram above shows how to wire up the following:

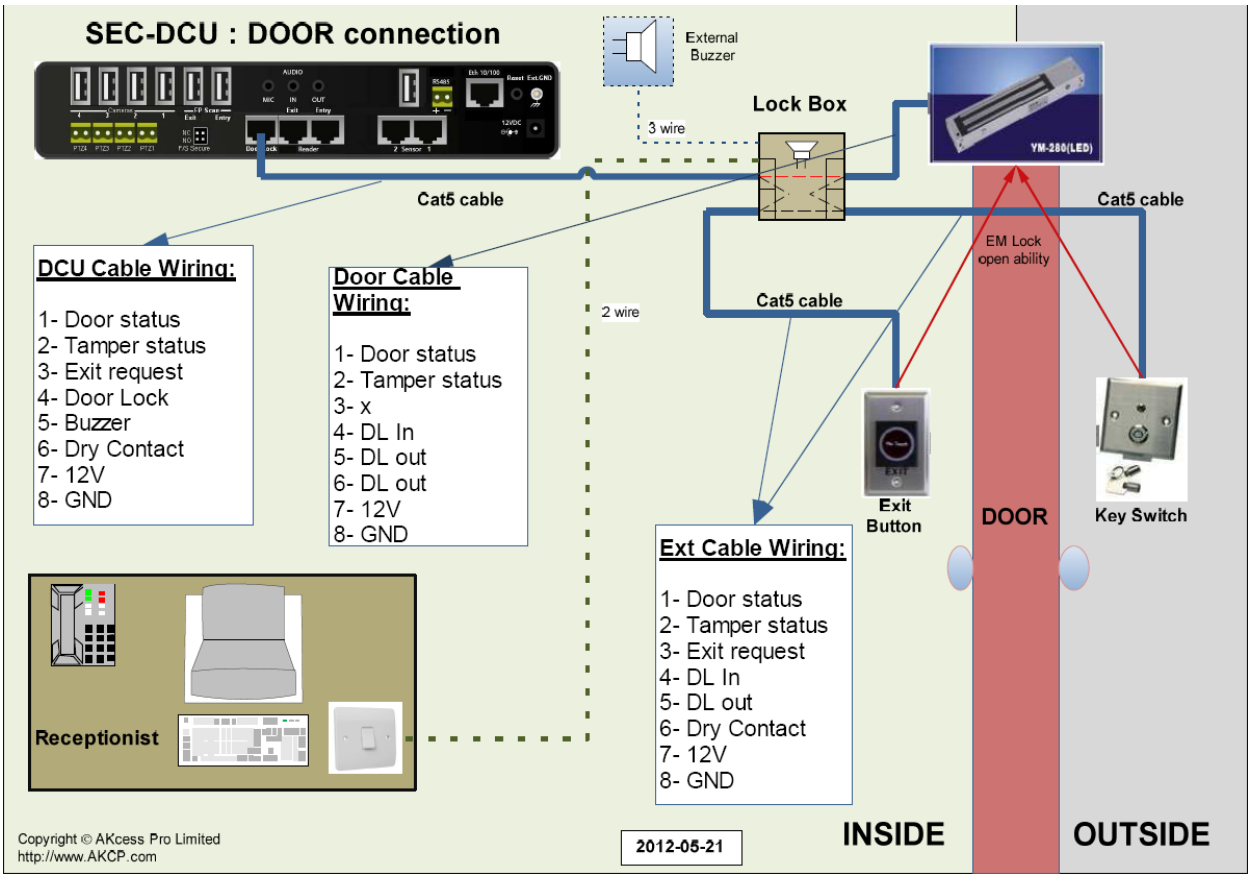
A single magnetic door lock
2 card readers
2 finger print readers,
1 Lock Converter Box
1 IR Exit button (with “Kill Switch” override)
1 Remote Exit Button (for secretary to manually open the door via a remote button)
1 External Buzzer
1 External Lock Override
3 x HD Digital Cameras

***Important Note*:** We *DO NOT* recommend connecting more than 2 HD Digital Cameras to the DCU if 2 Finger Print readers are to be used. Up to 4 cameras if no Finger Print readers are used. Maximum run length for the cameras is 5 meters.

The Cables Should not be extended further than the following;

3 meters for the IR Exit button, Card Readers and External Lock Override
3 meters for the EM door lock
3 meters for the cable between the DCU and the Lock Converter Box

5 meters for the Finger Print readers and the HD Digital Cameras



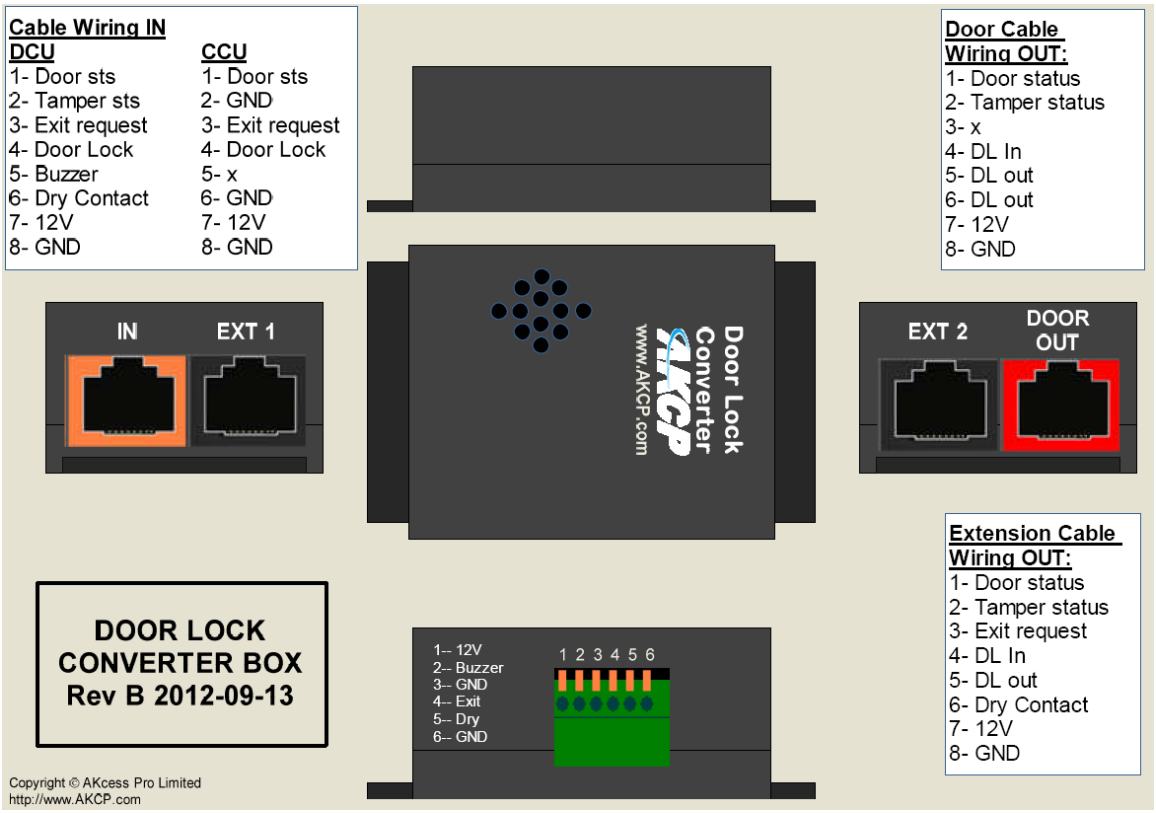
Mounting the DCU on a wall

With the AKCP single unit wall mount rack the DCU can be mounted on a wall near the door for convenience.

Lock Converter Box configuration (Lock Box)

EM Lock Packs

The Electromagnetic Lock, the External Lock Override, and the Lock Converter Box are called “EM Lock Packs” and will be shipped along with the DCU.



Orange = IN (from DCU or CCU)
Red = Door OUT (to EM Lock)
Black = EXT1 and EXT2 (IR exit button, key switch)

Internal jumpers
J5 Door Lock power loop

J5 (1-2) = no EXT1
J5 (3-4) = no EXT2
J5 (1-3) = no EXT1 and no EXT2

Tamper jumpers

J3 = no tamper detection on EXT1
J4 = no tamper detection on EXT2

Buzzer jumper

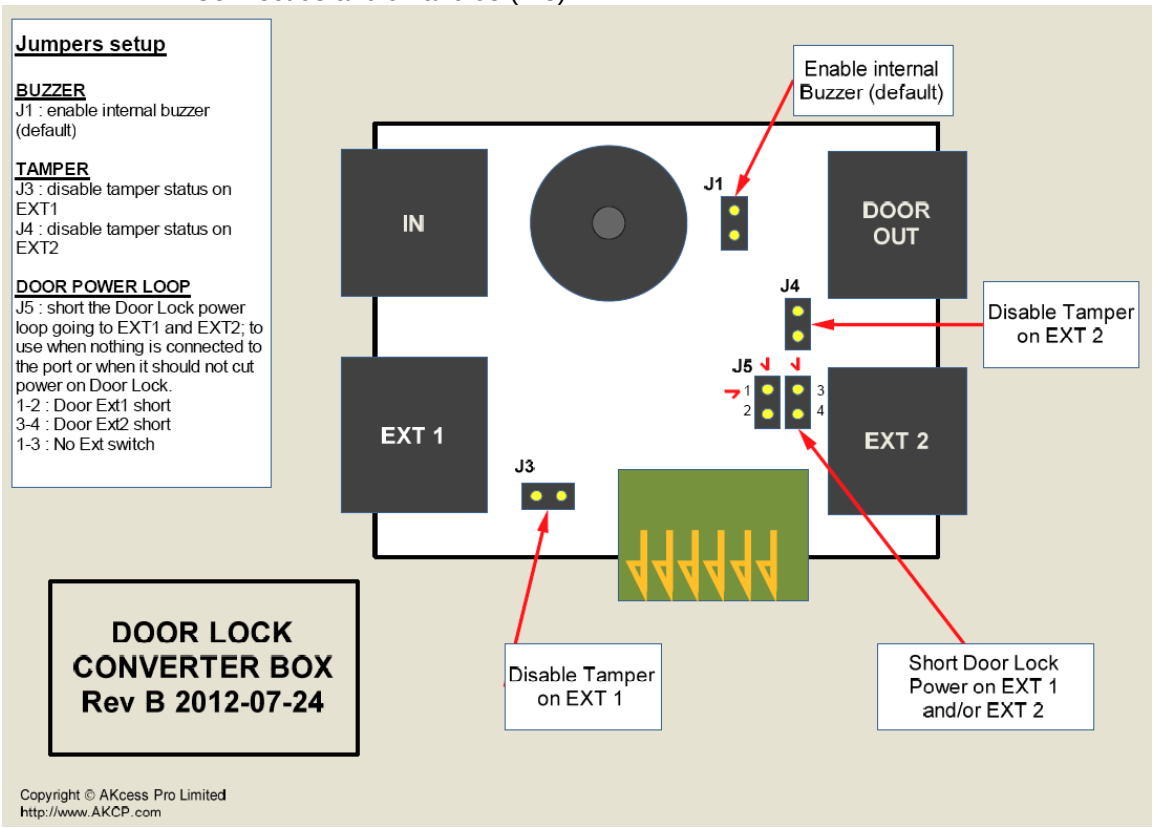
J1 = enable internal buzzer, remove for disabling internal buzzer

Configurations

When EXT1 is not used:
Connect J3 and J5 (1-2)

When EXT2 is not used:
Connect J4 and J5 (3-4)

When EXT1 and EXT2 are not used:
Connect J3 and J4 and J5 (1-3)


Jumpers setup
BUZZER
J1 : enable internal buzzer (default)
TAMPER
J3 : disable tamper status on EXT1
J4 : disable tamper status on EXT2
DOOR POWER LOOP
J5 : short the Door Lock power loop going to EXT1 and EXT2; to use when nothing is connected to the port or when it should not cut power on Door Lock.
1-2 : Door Ext1 short
3-4 : Door Ext2 short
1-3 : No Ext switch
Enable internal Buzzer (default)
J1
IN
DOOR OUT
J4
Disable Tamper on EXT 2
J5
1
2
3
4
EXT 1
EXT 2
J3
DOOR LOCK CONVERTER BOX
Rev B 2012-07-24
Disable Tamper on EXT 1
Short Door Lock Power on EXT 1 and/or EXT 2
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Compatibility

The Lock Box can be used with CCU
Connect ACDL02 on Door Out only
Buzzer is not supported by CCU, remove J1 for more safety,
Tamper is not supported by CCU
Dry Contact is not supported by CCU
Add jumpers according to configuration

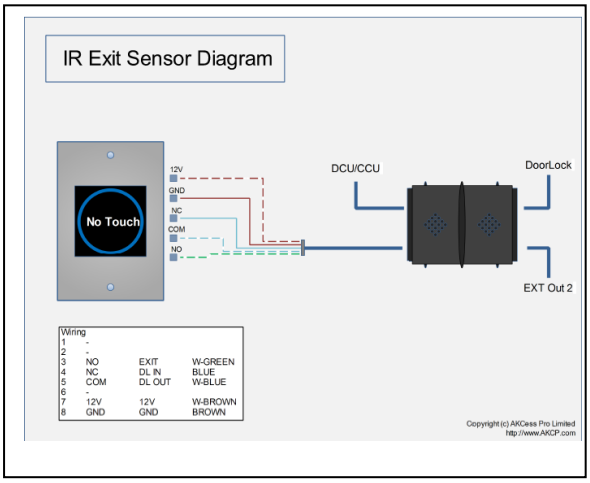
Door Out supports both ACDL01 and ACDL02 with default pre-wiring.
EXT1 and EXT2 can support ACDL01 with default pre-wiring.

External self-driven buzzer can be used (Signal, 12V)
External Exit button can be used (signal, GND)
External Dry Contact can be used (signal, GND) **Note: After 404p FWare**

C) Pre-wired Accessories

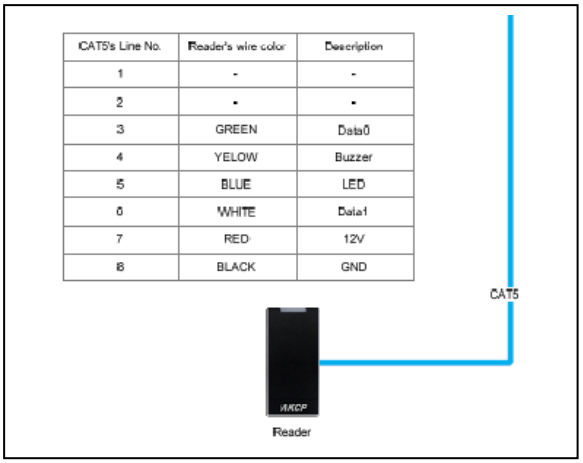
ACDL01	EM Door Lock	
CAT5 line	EM LOCK label	Description
1	NC	Door sts
2	*short to GND1 (8)*	Tamper
3	-	-
4	V+	Door Lock
5	V-	GND2
6	-	-
7	-	12V
8	COM	GND1

ACDB09	IR EXIT BUTTON	
CAT5 line	EXIT Button	Description
1	-	-
2	*short to GND (8)*	Tamper
3	NO	EXIT
4	NC	DL IN
5	COM	DL OUT
6	-	-
7	12V	12V
8	GND	GND

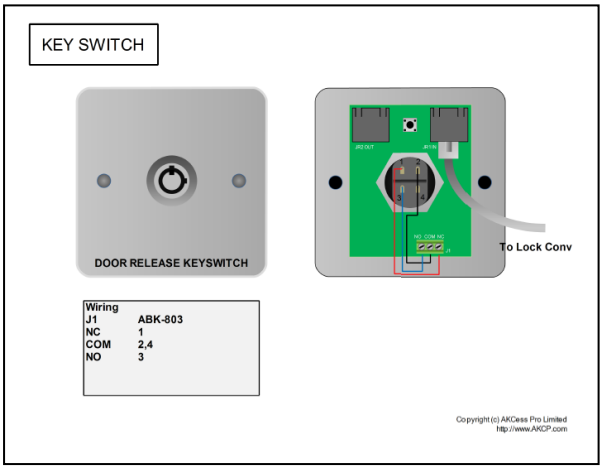


(Kill Switch is Also Added)

ACR04	RFID Reader	
CAT5 line	Reader wire	Description
1	-	-
2	-	-
3	GREEN	Data0
4	Yellow	Buzzer
5	BLUE	LED
6	WHITE	Data1
7	RED	12V
8	BLACK	GND
ACDB10	KEY Switch	
ABK-803	J1	



1	NC
2	COM
3	NO
4	COM



D) DCU Specifications & Connections

From the specification of DCU, we provide 1A for the door lock and 200 mA for each readers.

Maximum total recommended Cat5 cable length for 12V Door Lock loop is 12 meters.

It is recommended to use the Lock Converter Box with the DCU

> ACDL01 and ACDL02 pre-wiring can be used with Lock Box,
> If the door locks will be directly connected to the DCU, ACDL01 and ACDL02 wiring must be changed, please refer to the DCU wiring diagram.

The jumper on the back of the DCU configure the Door relay to be Normally Open (bottom) or Normally Closed (top)

Internal Door Relay

> The Door relay can be controlled by software
> The Door relay is hardware controlled by the exit signal, the Door relay will be opened within 2 seconds (for safety in case the unit does not answer requests)
> When the unit is powered-up, the Door relay will close after 2 seconds
> The IR exit button has an internal relay that opens the Door power loop when Exit is requested

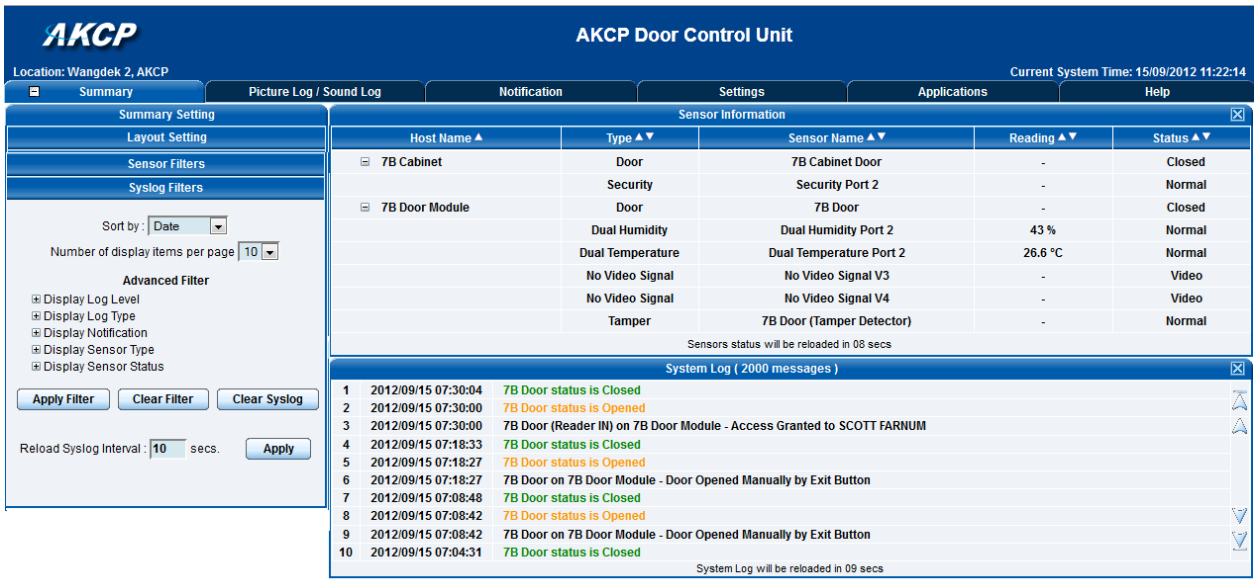
Once the wiring is completed then the DCU needs to be configured in the AKCess Pro Server software interface.

E) Setup & Configuration of the DCU web interface

Since the DCU uses the same hardware as the securityProbe 5ESV the web interface is very similar but has been scaled down as most of the configuration should be performed from the AKCess Pro Server software.

If you able to log in to the DCU's web interface exactly the same as you would a securityProbe 5ES or 5ESV. If you are not familiar with the tabs and settings in the DCU's web interface please refer to the securityProbe 5ESV's user manual.

Below is an example of how the DCU's web interface appears after logging directly into the unit. (the camera display in the Summery page was removed for increased performance. The cameras should be viewed from the AKCess Pro Server Software.)



The following tabs and settings have been removed from the web interface of the DCU;

Camera Settings and Viewing – Viewing of the live streaming from the cameras on the Summery page and camera settings can be viewed and configured from the AKCess Pro Server software.

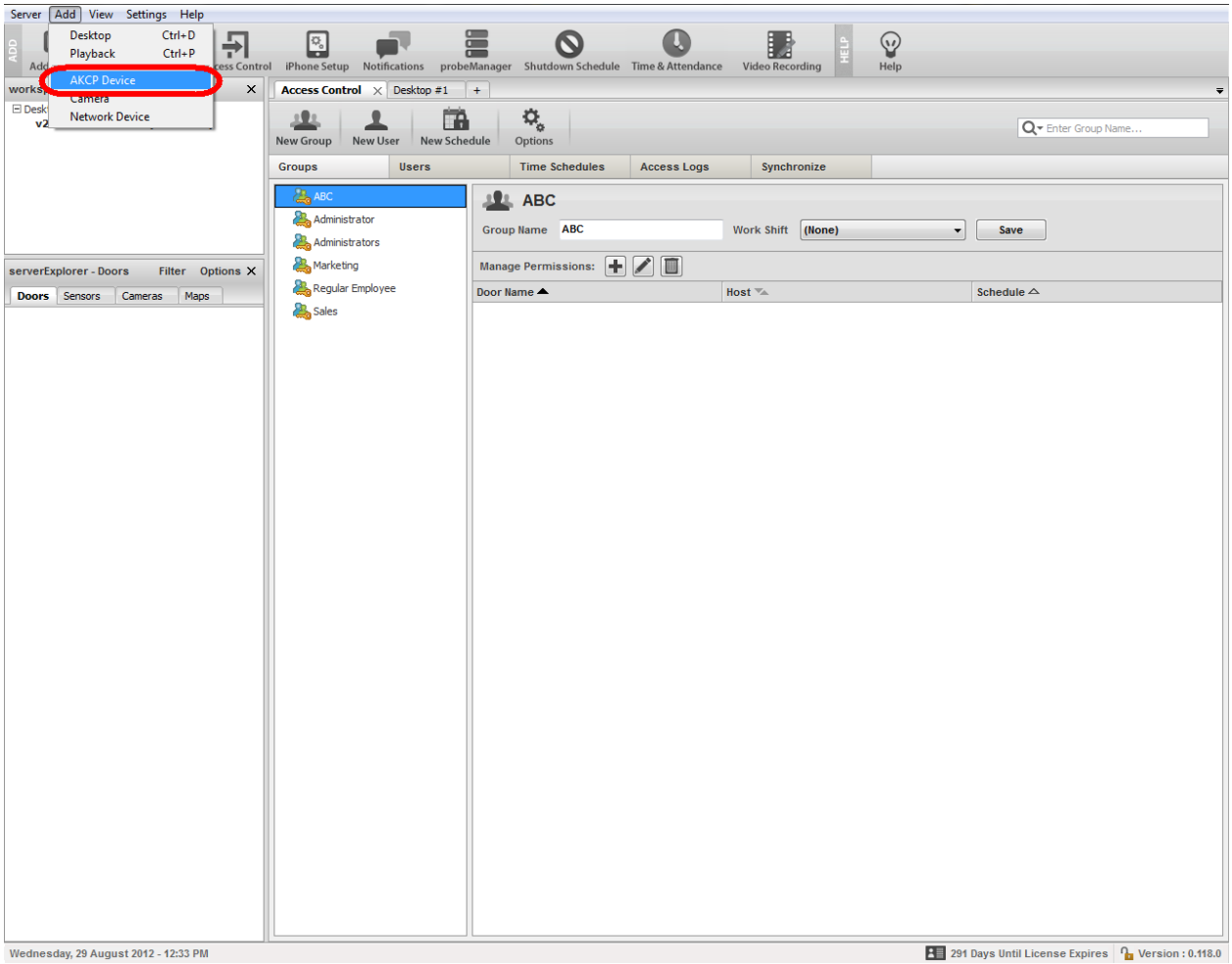
Map – The mapping feature can be used on the AKCess Pro Server.

Sensors & Graphing – All of the sensors that are connected to the DCU can be configured and graphed from the AKCess Pro Server software.

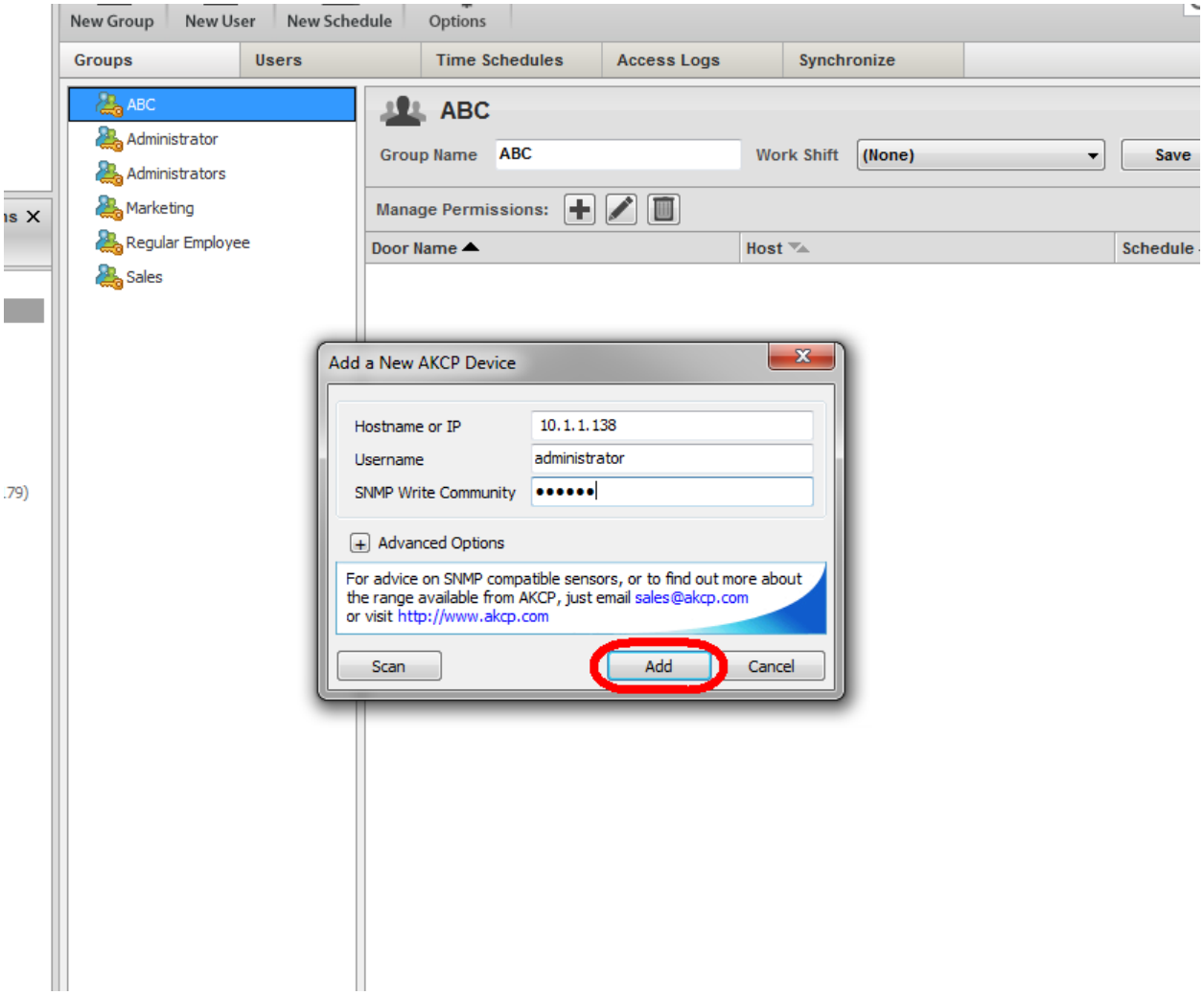
For configuration and setup of the other Access Control features in the AKCess Pro Server such as adding users, time and attendance etc., please see the separate manual for this titled "AKCess Pro Server / Access Control.

AKCess Pro Server / Access Control – Adding your DCU

After first downloading and installation the latest version of the AKCess Pro Server software you can then add your DCU. Please refer to the AKCess Pro Server User Manual for specific instructions on installing the server software.

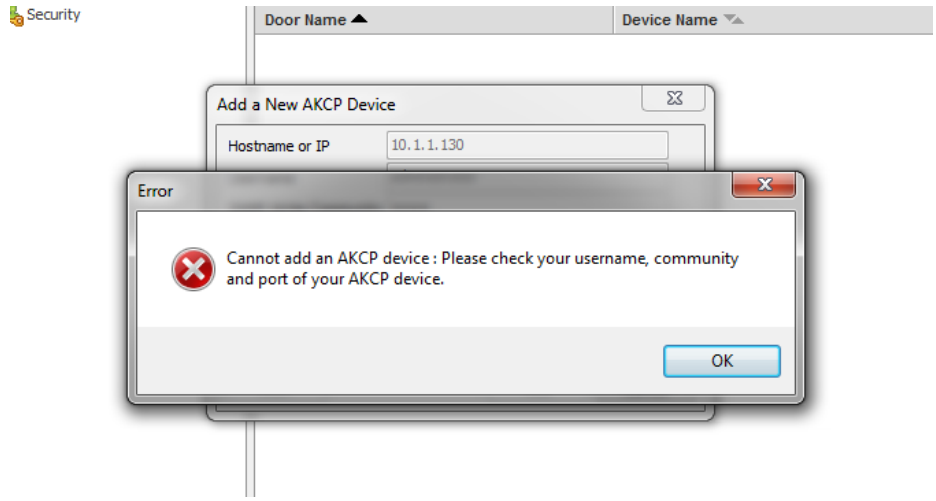


We will begin by going to the Add menu then choosing the AKCP Device. This will open up the Add Device dialog box on the next page.



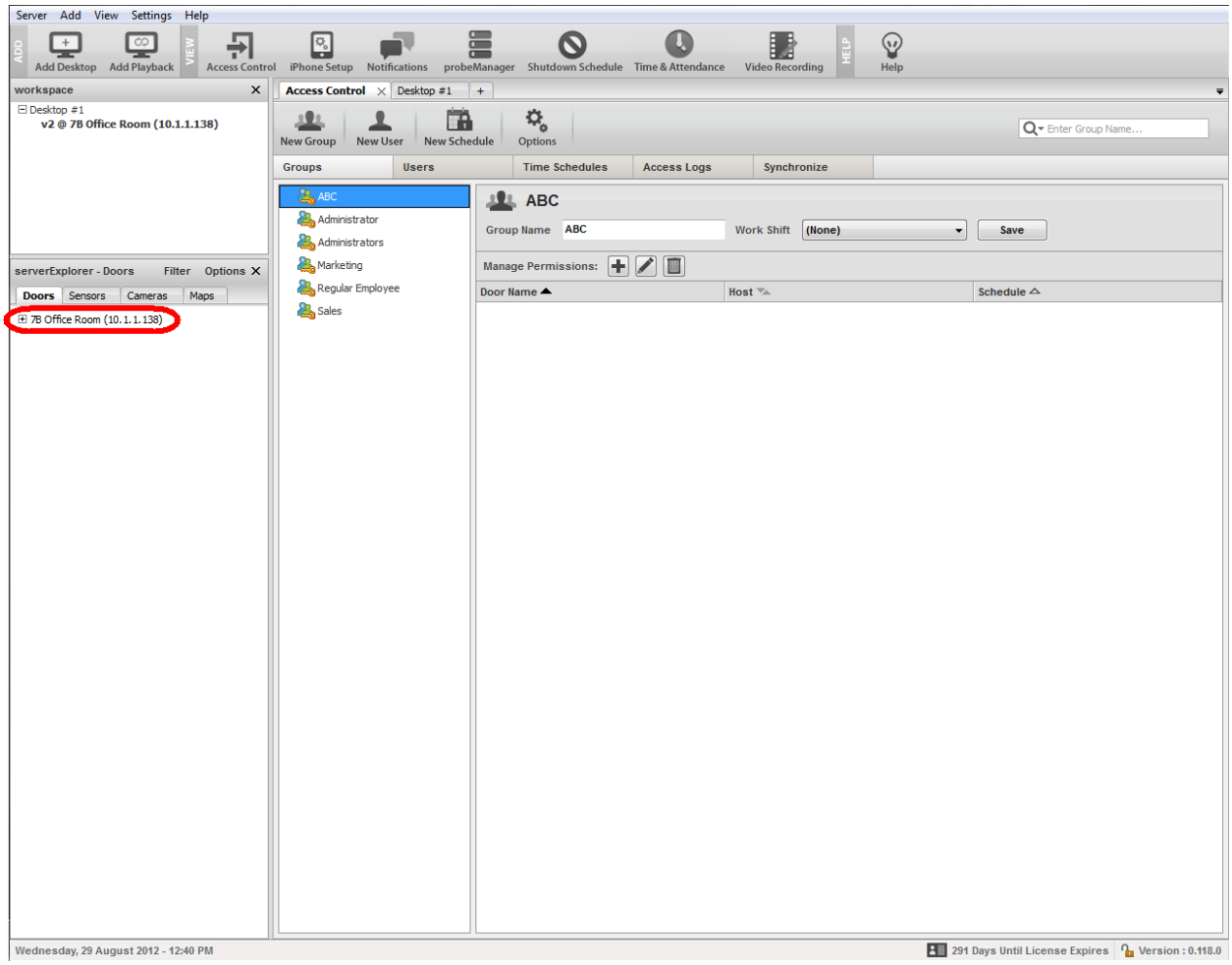
Now we will enter the IP address of our Door Control Unit into the Hostname or IP field.

You need to ensure that your DCU is connected properly as shown in the DCU user manual that has the latest firmware running on it.

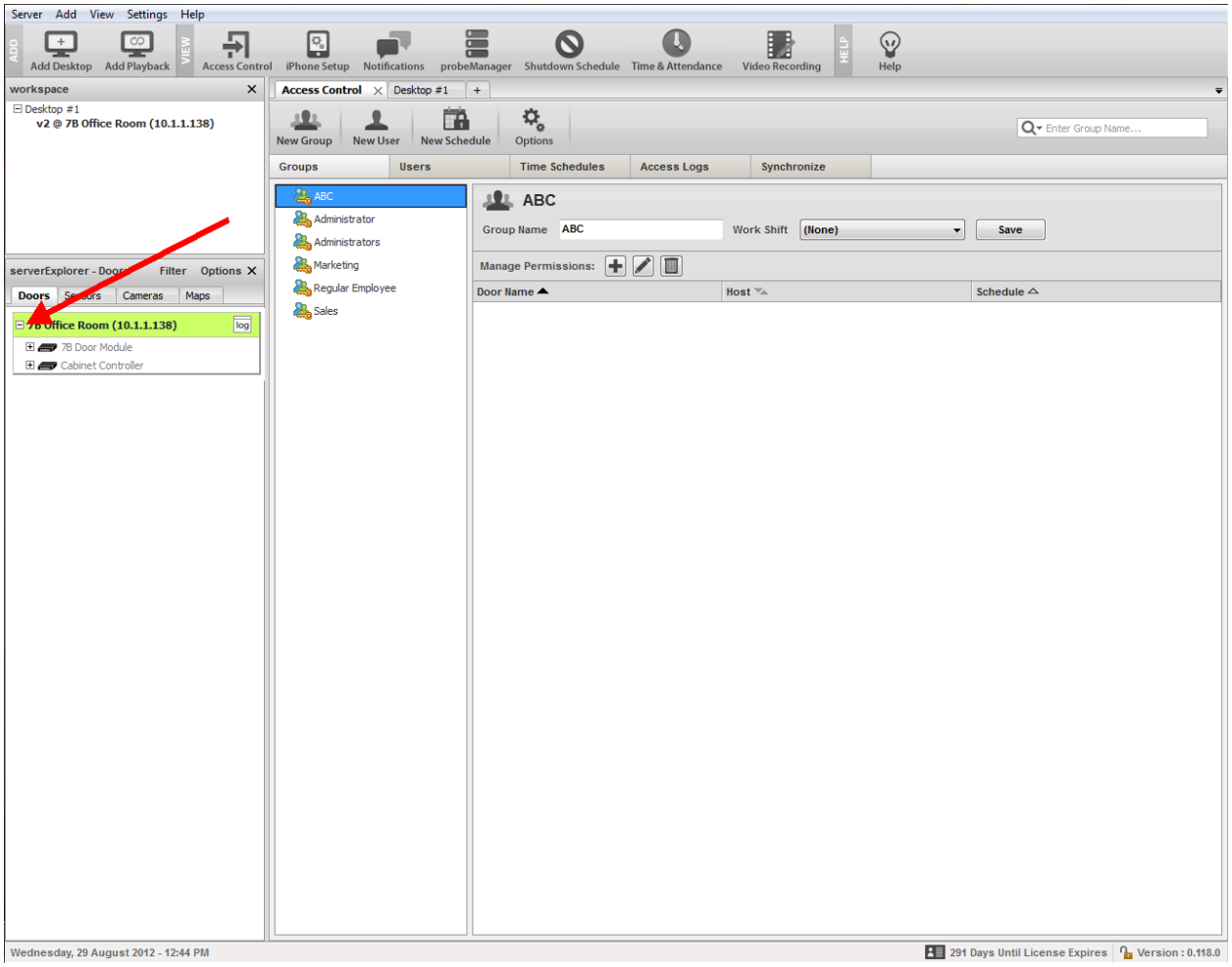


If you receive the error message shown in the above screen shot check the following:

1. Make sure the base unit is upgraded to the latest firmware on our web site. Your firmware version should not be older than version 404p. You can check this in your units web interface >> Settings >> General >> System Description.
2. Check the Administrator password in your web interface settings on the base unit >> Settings >> System Administrator >> User & Group Management.
3. Check the SNMP community strings on the base unit >> Settings >> Connectivity >> SNMP
4. Check to make sure the SNMP port is set to the correct number. Check Advanced Options on the software side and make sure they match up with the setting on the base unit side >> Settings >> Connectivity >> SNMP >> SNMP port.

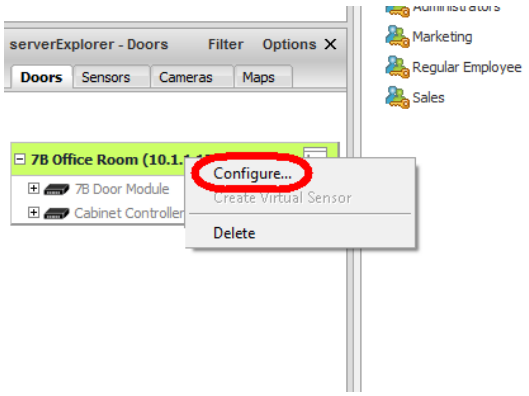


After you click on the Add button you will now see the DCU unit has been added into the “serverExlorer” in the left hand column of the AKCess Pro Server as shown in the screen shot above.



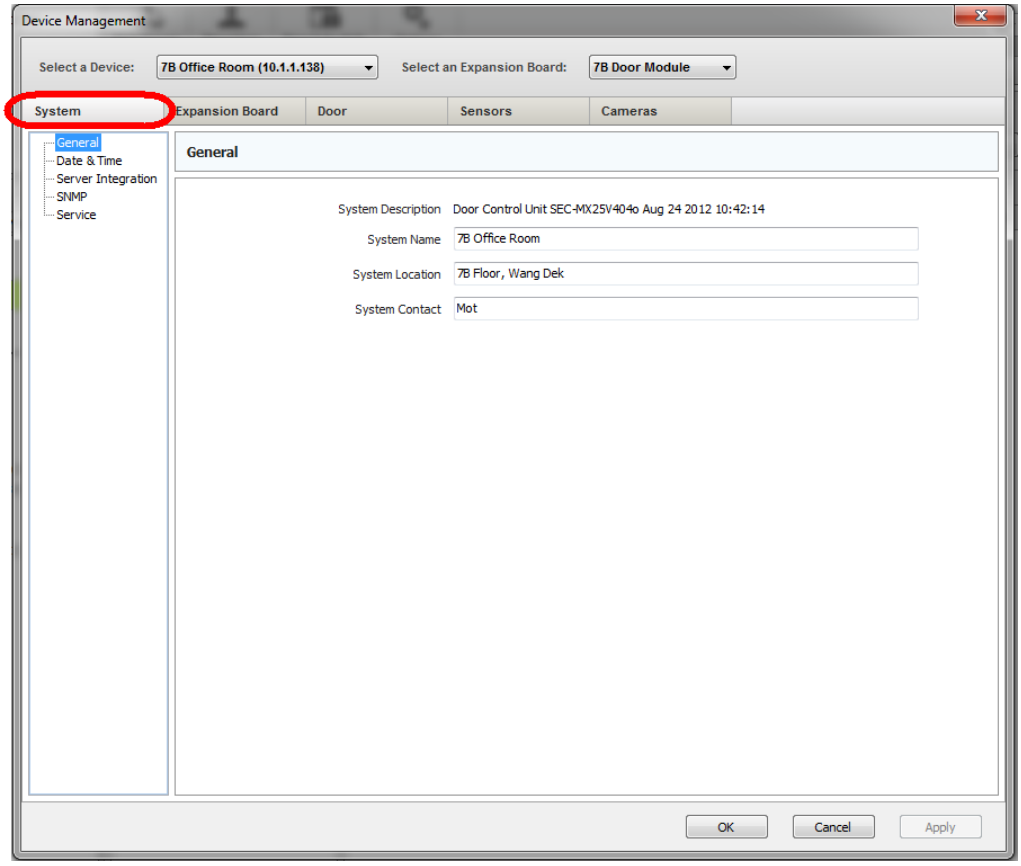
By clicking on the expand or the + icon in the serverExlorer we can now see our DCU unit and that the unit is online and connected successfully to our server. If there was a problem with the connection the color would be showing Red.

If we again click on the expand or the + icon on the Door Control Unit, then we can view the DCU's that are connected to our base unit.

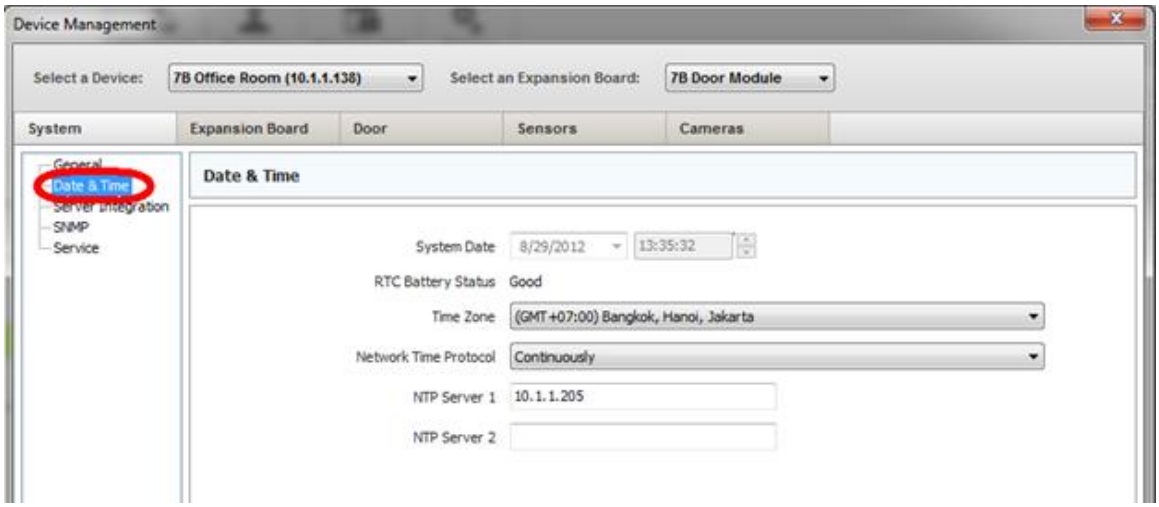


If we right mouse click on our DCU we can configure the following setting;

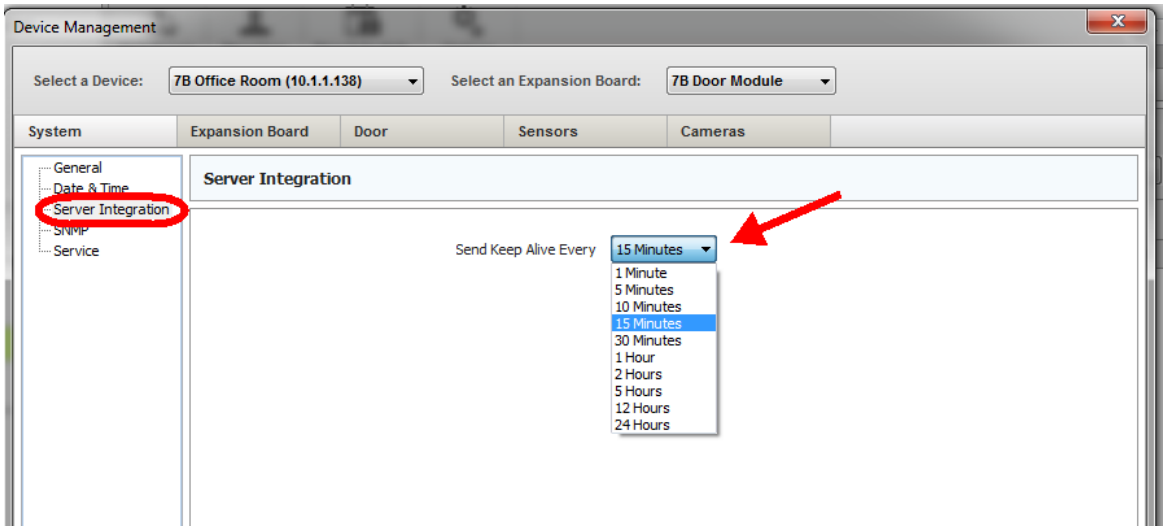
System Settings



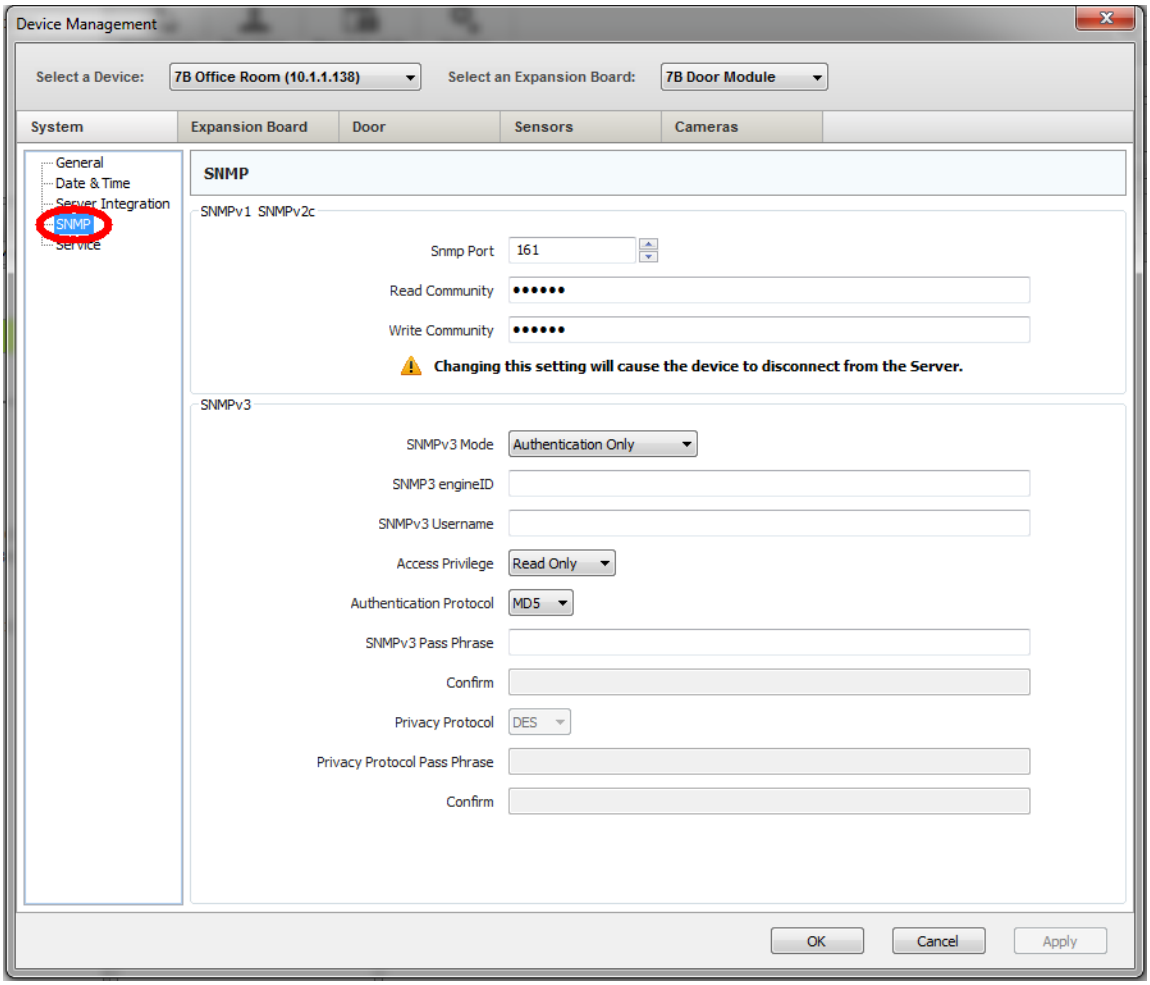
General Settings includes System Name or our DCU name, System Location and Contact.



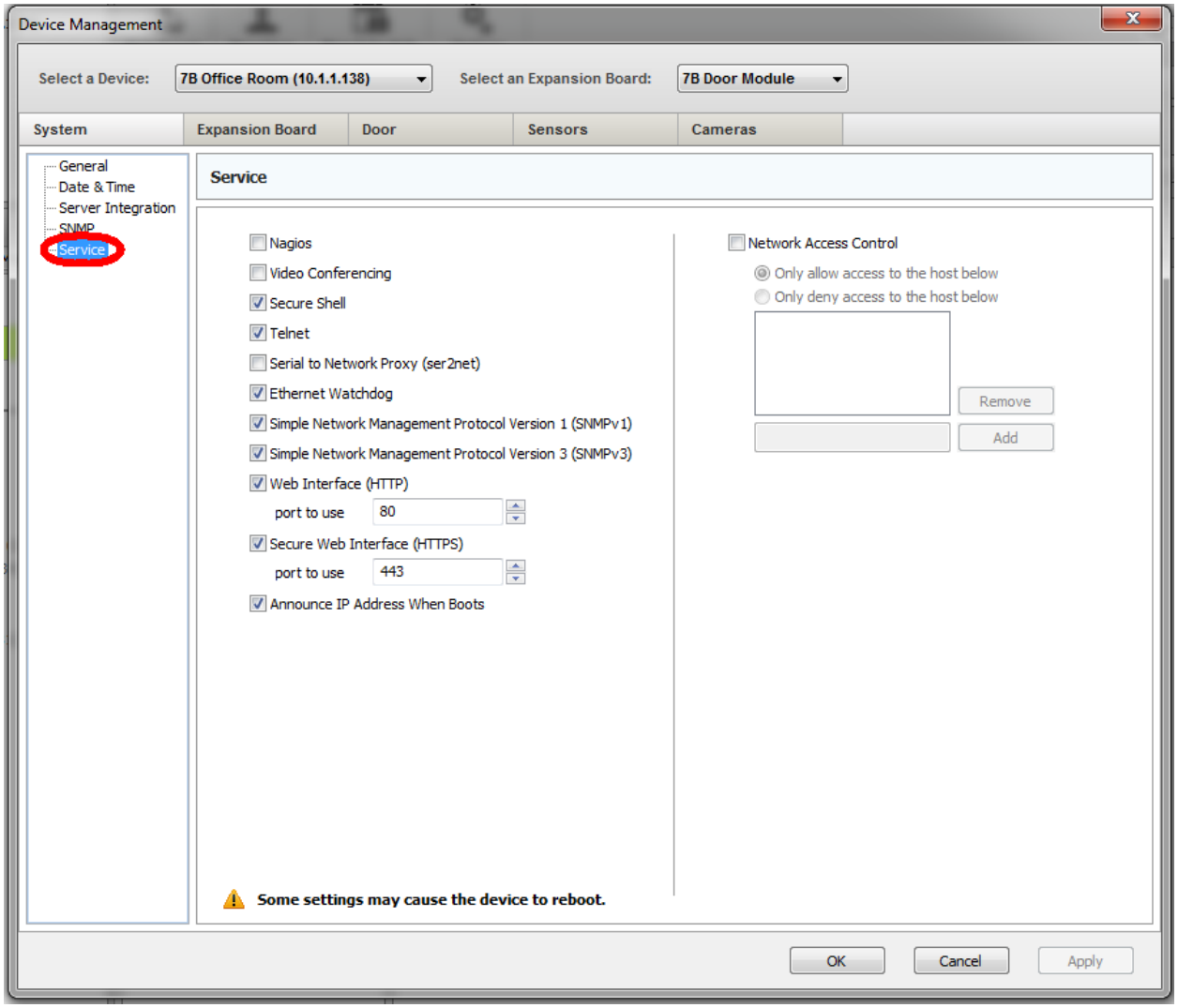
Date & Time – System Date and Time



Server Integration – Set Keep Alive Intervals



SNMP – Settings for SNMPv1, v2 and v3 including Read and Write Communities



Service – Services and Security Settings and NAC

You can enable or disable the Nagios, Secure Shell and Telnet applications running on the unit thus making the unit more secure as shown in the screen shot above.

You can also close or change the ports used to access the units web interface, disable HTTP and enable HTTPS only.

The "s" at the conclusion in HTTPS stands for secure. This SSL/TLS connection type is used primarily for high-value sites or ‘pages’, to elevate the potential of being unreadable by anyone but the end-points.

One benefit is the traffic between client and the DCU is not cached along the various units as it moves across the ‘Net, and so can’t be accessed by someone after the connection is terminated.

Use the SNMPv3 SSL (Secure Sockets Layer) which is the standard security technology for establishing the encrypted link between the securityProbe in our case and the web

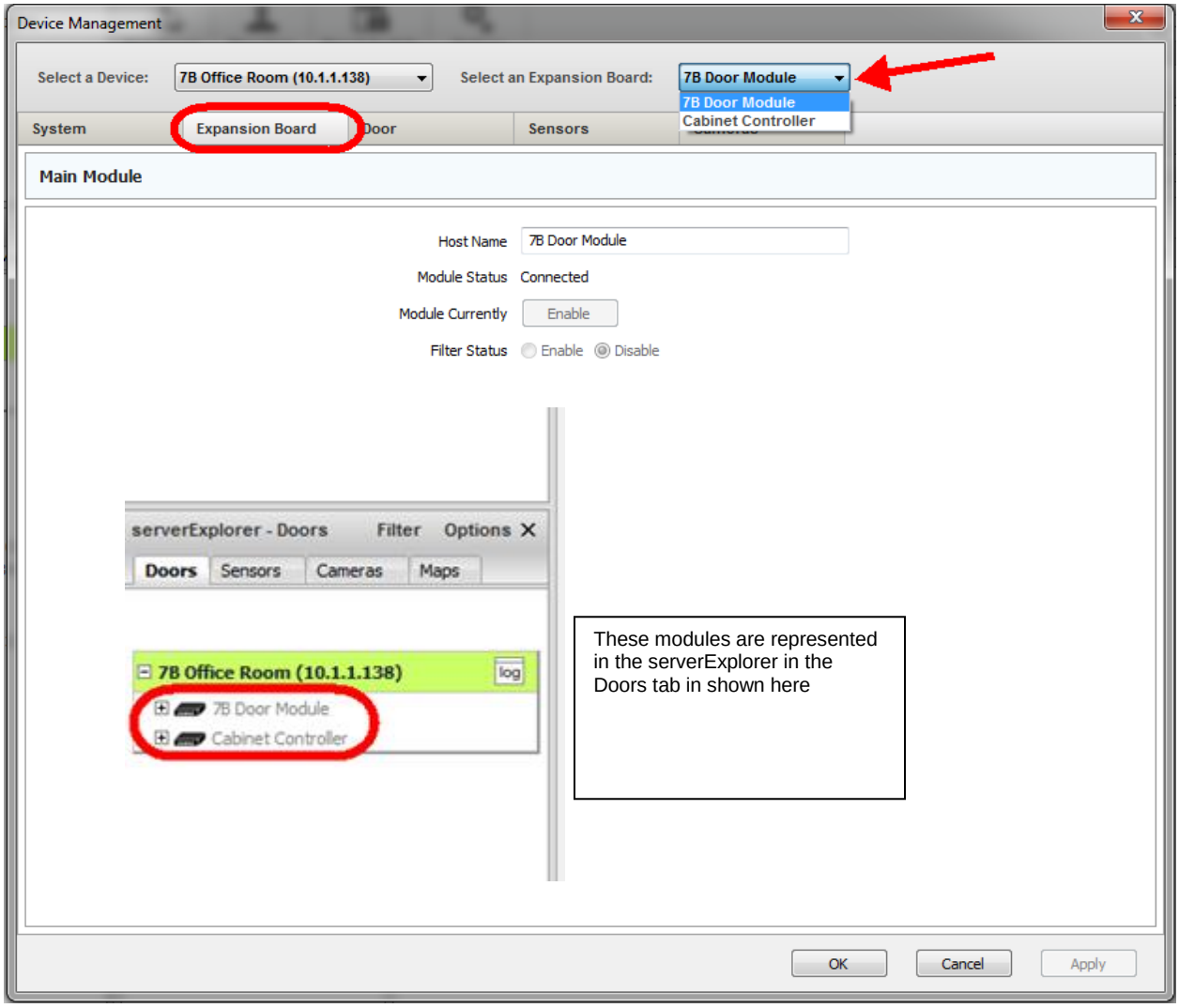
browser. This link ensures that all data passed between the securityProbe and the browser remains private and integral.

SNMPv3 provides important security features:

* Confidentiality - Encryption of packets to prevent snooping by an unauthorized source.
* Integrity - Message integrity to ensure that a packet has not been tampered with in transit.
* Authentication - to verify that the message is from a valid source.

The NAC or Network Access Control feature allows you to restrict access to the web interface for only certain IP addresses, or deny access to the web interface for only certain IP addresses.

Expansion Board Settings



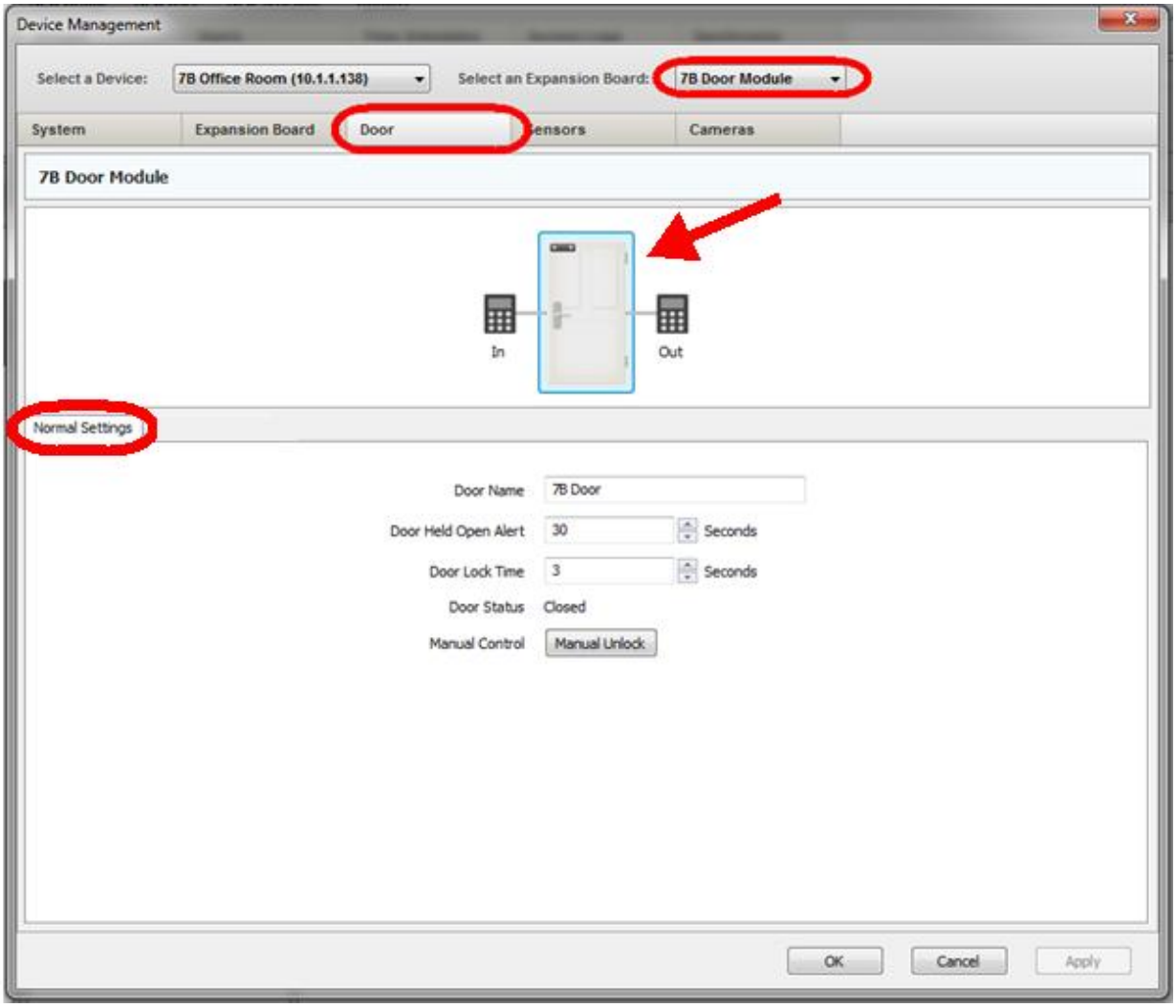
The Expansion Board tab is where we can check the status of the Main Door Controller Module , enable or disable additional CCU's (Cabinet Control Units) or additional Expansion Units such as an E-sensor8 Expansion unit.

We can also enable or disable the Filter Status of the modules.

We can just choose each board from the Select an Expansion Board drop down menu as shown in the screen shot above.

You can also right mouse click on the module or CCU in the serverExplorer then click the Configure to also open the same Expansion Board tab for each module.

Door Settings



The Door tab is where we will setup the DCU to control the door lock, the card and finger print reader for the door. First we click on the door icon that the arrow in the screen shot above shows.

First in the Normal Setting tab we can configure the following settings:

Door Name – We can name our door for easy identification.

Door Held Open Alert - We can set this time so that if the door is held open for a certain amount of time the DCU will send an alert.

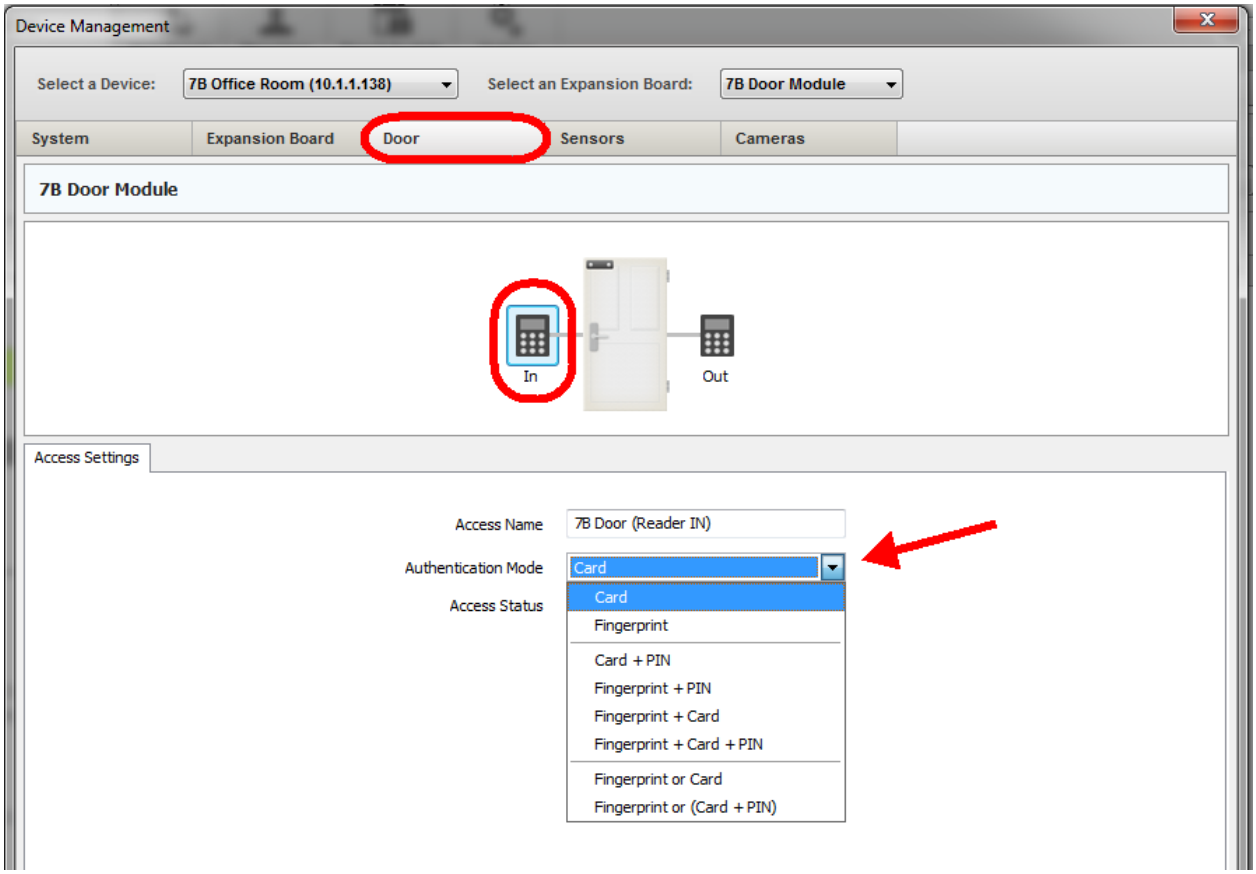
Door Lock Time – This is the time that the door will remain unlocked after it is triggered. (count an additional 2 seconds due to hardware timing)

Door Status – Shows us the status of the door weather it is Closed or Open.

Manual Control – Allows us to manually unlock the door from the Door tab.

Please Note: The Advanced Settings Tab has been removed from the latest version of the AKCess Pro Server software. The tab was for setting up the dry contact on the door lock which is no longer available.

Reader Settings



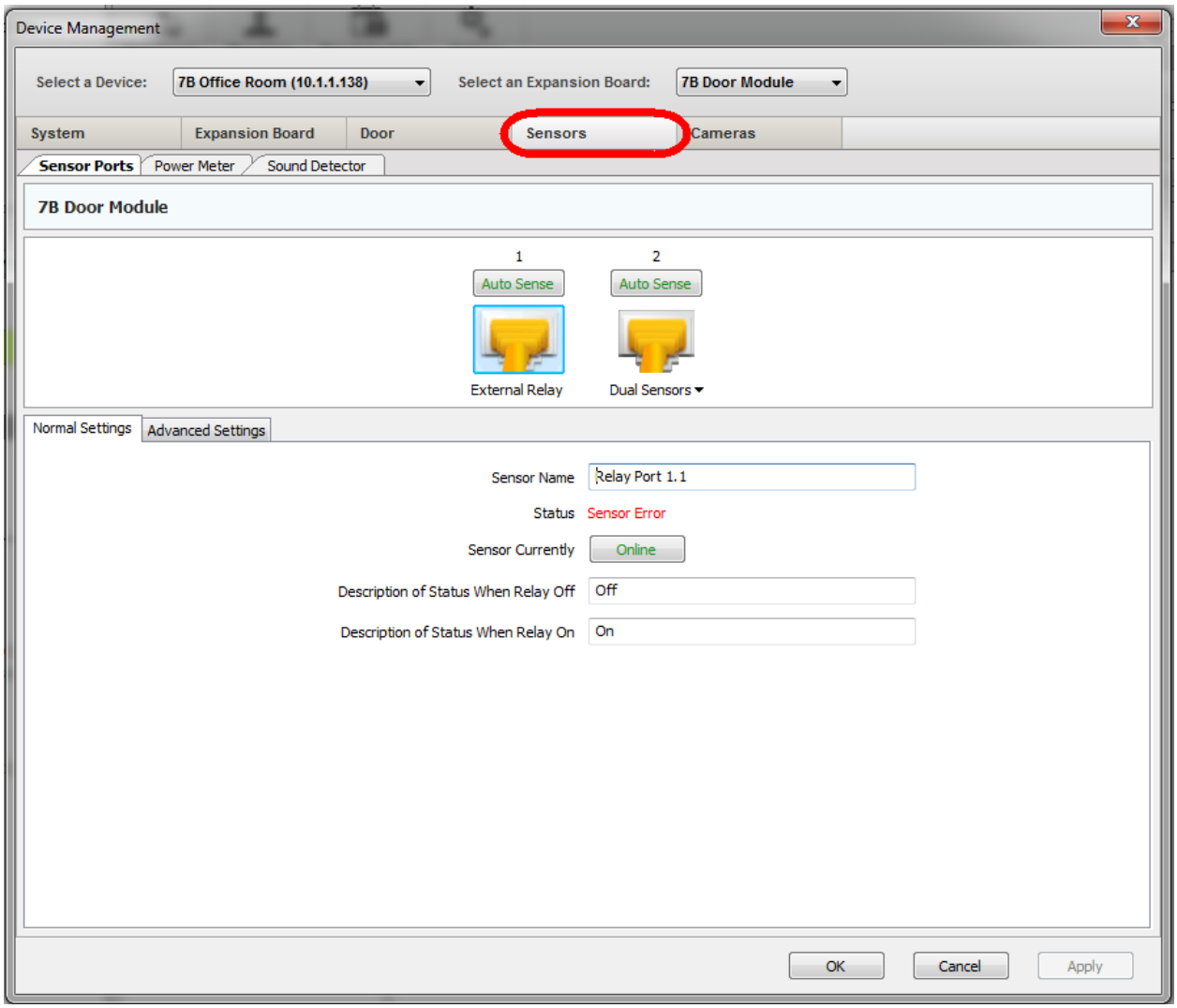
After clicking on the Reader In Icon as shown in the screen shot above we can first name our access point in the Access Name field.

Then we can choose the Authentication Mode from the drop down menu as also shown above. We can choose from the RFID Card reader, Fingerprint reader a combination of both or either or.

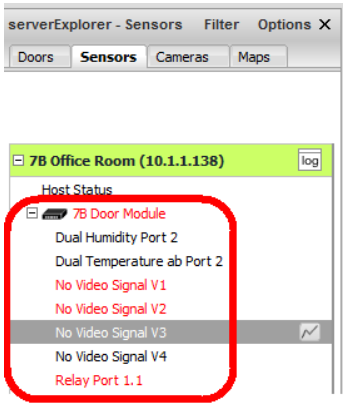
These same options also apply when clicking on and configuring the Out Reader icon.

Both the In and Out Reader pages also show the Access Status.

Sensors

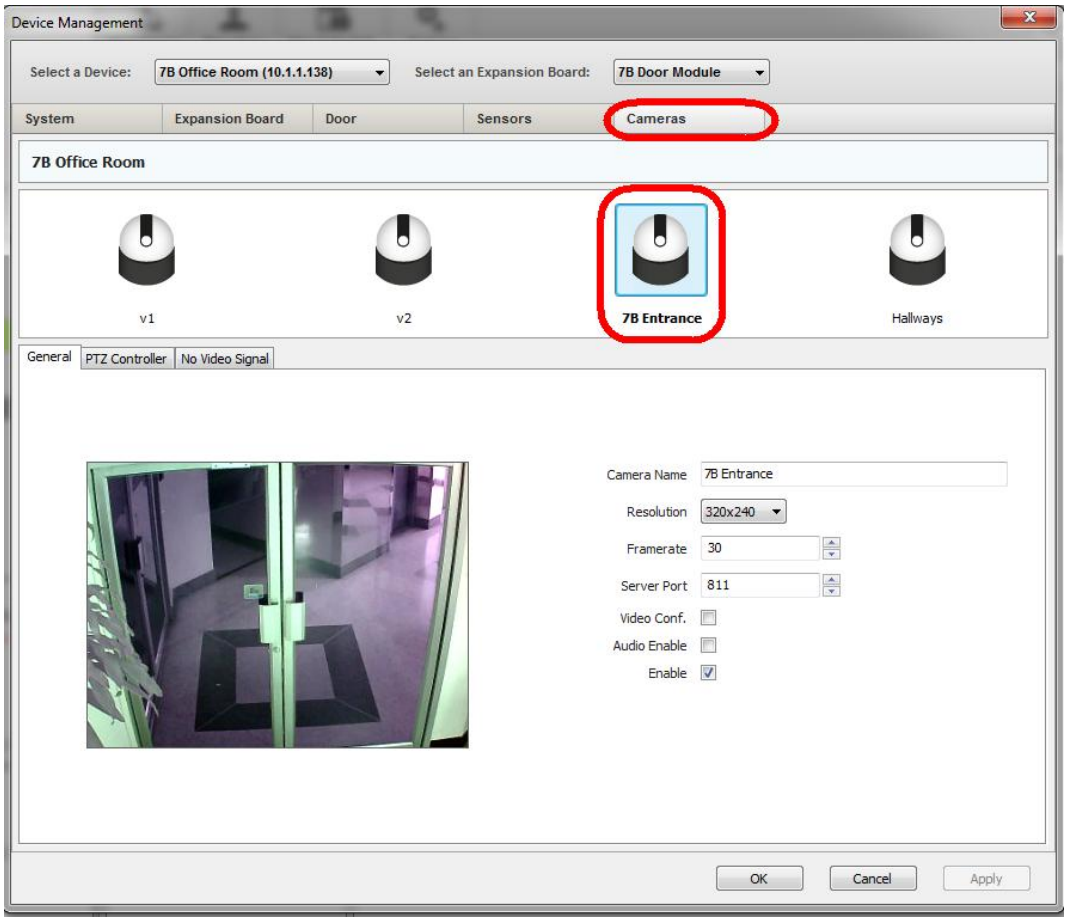


By clicking on the Sensors tab we can configure the sensors that are connected to the two RJ-45 sensor ports on the DCU. Please see each separate RJ-45 AKCP Intelligent Sensor user manual for specific information on each sensor.



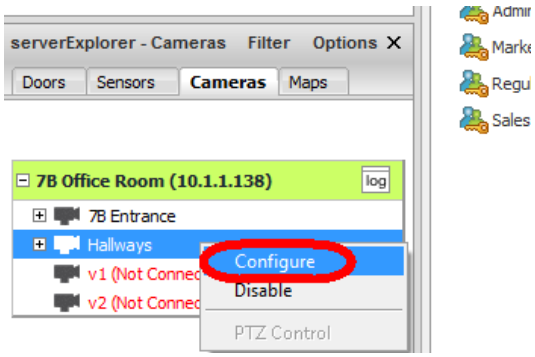
All the sensors that are online on the DCU will also be visible in the serverExplorer Sensors Tab s shown in the screen shot above.

Cameras



Again the recommendation is if you plan to connect 2 finger print readers to the DCU then you should not connect more than 2 of the HD Digital Cameras. If you do not plan on connecting any finger print readers then you can connect up to 4 HD Digital Cameras to the DCU.

To configure your camers you would first click in the Cameras tab, then the camera that is connected to the DCU as shown in the screen shot above.



You can also open the camera configuration page by right mouse clicking on the cameras in the serverExporer and clicking on Configure as shown in the screen shot above.

F) SNMP OID's for the DCU

sensorDoorIndex
.1.3.6.1.4.1.3854.2.3.27.1.1

sensorDoorDescription
.1.3.6.1.4.1.3854.2.3.27.1.2

sensorDoorValue
.1.3.6.1.4.1.3854.2.3.27.1.4

sensorDoorStatus
.1.3.6.1.4.1.3854.2.3.27.1.6

sensorDoorUnlockPeriod
.1.3.6.1.4.1.3854.2.3.27.1.**62**

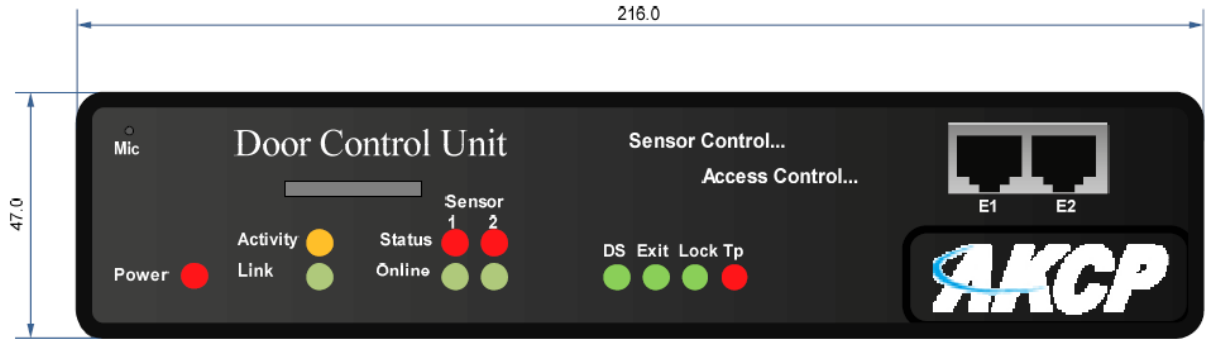
sensorDoorOpenPeriod
.1.3.6.1.4.1.3854.2.3.27.1.**63**

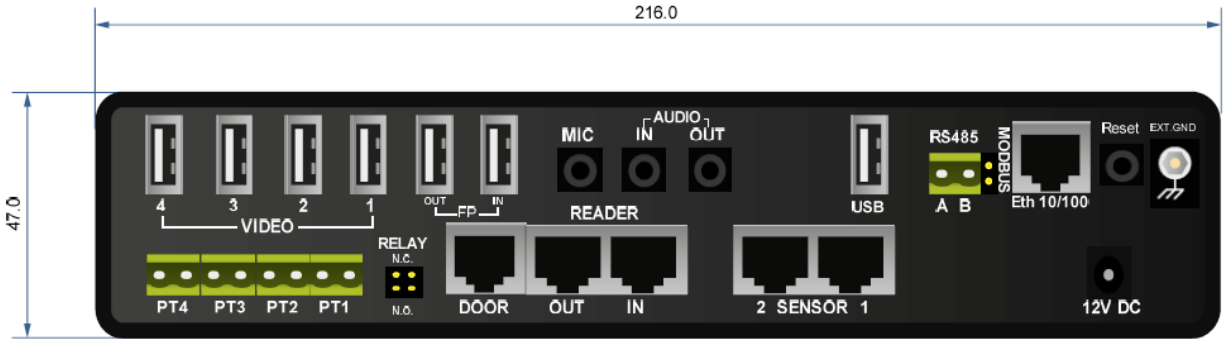
sensorDoorCmd
.1.3.6.1.4.1.3854.2.3.27.1.**64**

6. DCU FAQ

1. What are the dimensions of the DCU?

The DCU is shipped in the same case as the SEC-5ESV base units





2. Do I need a securityProbe base unit with the Door Control Unit or can the DCU work without any other connections?

The Door Control Unit is a standalone door controller. This means that it DOES NOT require the securityProbe to operate. A Door Control Unit is capable of controlling the access to the main door of the computer room.

Two configuration options are available.

A. Door Control Unit with Fingerprint and Camera Bundle.
B. Door Control Unit with Single Card Reader entry and Exit Button.

Both options can be tailored to suit your exact requirements.

For option #2 we recommend adding an additional ACR04 and using two Card Readers on each side of the door. This not only increases the security of the system. It lets your customer track the IN and OUT

times for each person. These can be linked to two security cameras on each side of the door to record entry and exit events.

3. **Can I monitor the Door Control Unit with AKCess Pro Server Software without a securityProbe?**

   The Door Control Unit is a standalone product. The AKCess Pro Server is required to configure the Users of the system and the Intelligent Sensors and cameras. However, once configured the Door Control Unit will run independently without the need for a direct connection to the AKCess Pro Server.

4. **If my requirements are to monitor 50+ Racks with the Cabinet Control Units. Is this right that I need ONLY 1 Door Control Unit for this? What happens if the power is cut? How many CCU's can I daisy chain off of 1 DCU?**

   The Door Control Unit has x2 Front Panel RJ45 Expansion Ports. Each expansion cable has a run length of 300m. However, as Expansion Units are connected in Series, if one unit encounters a communication problem all 50+ units would be un-accessible. Note that unless there was a power outage the cabinet lock WOULD remain locked.

   A best practice, we would suggest you divide the CCU's up over a sufficient number of DCU's to prevent widespread inaccessibility in the event that a problem occurs on a single unit.

   The best practice for daisy-chaining CCU's to the DCU's is 25 per string. That means 50 CCU's in total per DCU. The reason for this is to reduce the risk of chain communication failures.

5. **The Key Cards we are to use with the AKCess Pro Software and the USB Desktop Card Reader. Can I define a Master Key Card for all Racks?**

   The AKCess Pro Server has the ability to set up Groups of Users. These can be configured to your requirements such as Super Administrator, Regular Employee, Cleaner and so on.

   Each Group of Users can have their own specific range of accessible cabinets or doors. These can also be tailored to specific access schedules.

   You can get a better idea of this by clicking on the Access Control tab of our AKCess Pro Server web page http://www.akcp.com/products/akcess-pro-server/*

6. **On every Cabinet Control Unit I can connect 2 sensors. The sensor I can control with the Door Control Unit without a securityProbe – is this correct? How do I configure the sensors on a DCU and CCU?**

   The Sensors need to be configured from the AKCess Pro Server Application. There is no User Interface on the Door Control Unit to configure Sensors. However, we have included the ability to create sensor notifications stored locally to the Door Control Unit.

7. **What license do I need (AKCess Pro Sever Software. Do I need 1 license for 1 DCU and CCU? What are the costs for 1 license?**

Only Sensors, Cameras and IP Cameras require a license for the AKCess Pro Server. If you need more details on the AKCess Pro Server License policy regard the sensors please refer to the AKCess Pro Server Access Control product manual for this.

We offer licenses in a block format. License blocks enable functionality for both AKCP Sensors and AKCP Cameras in a single cost that includes the Server Software.

1-99 $500.00
100-199 $750.00
200-299 $1000.00
300-399 $1250.00
400-499 $1500.00*
500-999 $1750.00*

In addition to this fee, a 5 Year AKCess Pro Server subscription is required for on-going operation of the Server. This subscription costs 50% of the original server purchase.

For example - AKCess Pro Server (1-99 Block) = $500.00 + 50% = $750.00 At the end of the subscription period option upgrades and support will cost 50% of the original price. Example : $750.00 - 50% = $375.00

If a client wishes to use 3rd Party IP Cameras, the licenses for these cost $35 per year. Dealer Discounts are applicable on all AKCess Pro Server purchases.

8. **How much memory space is there on the DCU for storing my data?**

   The DCU's have approximately 5 Mb space for storing user data.

9. **How much space does one finger print template and card information take up? In other words if one person has both a finger print and card.**

   1 finger print template uses 420 bytes on average and 1 card uses 211 bytes so 1 user with 1 card and 1 fingerprint uses a total of 631 bytes.

10. **How many total finger print templates and card information can be stored on the DCU?**

    If 1 user always has 1 fingerprint and 1 card, then the limit is **5,000 users** that's 3.2M in total. The remaining space is allocated for other things. For example, Groups, Schedules, etc.

11. **How many total cameras and readers can I connect to the DCU?**

    A total of 4 HD Digital cameras can be connected to the DCU, however we recommend a total of 2 cameras if 2 finger print readers are required.

12. **What are the specific electrical connections to access readers, door locks and emg. open switches?**

    All the electrical connections to the readers, door locks and switches and provided by the DCU and CCU through the new RJ-45 connections using standard CAT5/6 LAN cable.

13. **Is the EM card reader capable of reading the key tags as well and programmable through the ACT05?**

Yes, the card readers are also capable of reading key tags and is setup from the AKCess Control Server.

14. What kind of electrical locks could be used in the doors (control voltage etc.)

We offer and highly recommend our ACDL01 or ACDL02 EM door locks which are powered by the DCU or CCU. These require 12VDC. You can use your own door locks but we would need the specifications and wiring diagrams for this integration.

15. What about the need for external power supply for DCU's, readers, cameras, locks?

The DCU, the CCU and the cameras require an AC power adapter which is included. The readers, doors locks and switches are all powered by the DCU or CCU.

16. Is the DCU Linux based with own WEB interface like the SEC5E products or dependant on Access Pro Server? What are the differences in in the web interface between the DCU and the SEC?

Yes, the DCU uses the same main board and iMX25 processor of our SEC-5ESV unit and does have its own web interface, however it does need the AKCess Pro Server software to operate the Access Control enrolment system. The DCU itself operates independently of the Server.

Regarding the web interface difference between the 5E, 5ES and 5ESV, the DCU has no web interface for sensors and video configuration.

17. Can you do all monitoring through sensors, virtual sensors etc. in the DCU like in the SEC-5ESV (without the need to add a separate SEC-5ESV unit)?

Yes, you can monitor the sensors and setup the notifications in the DCU's web interface as you would in the SEC-5ESV without the need for another base unit. However as noted before, you need to configure the sensors from the AKCess Pro Server software. Also note there are no virtual sensors on the DCU's web interface.

18. Do you have some instructions on how install the EM Door Lock? Is it compatible with any door?

The EM Locks are suitable for wooden, glass, metal and Fireproof doors as it says on the website and datasheet. In terms of installation. The installation guide is covered in this manual. We highly suggest you hire a qualified lock smith to install the door locks as they are familiar with the EM locks and will know how to install them. Most likely they will need to supply you with custom brackets for mounting the locks.

19. **We have our own Wiegand card readers and door strikes with the following specifications. Can we connect these to the DCU?**

    The maximum current draw for the standard 26-bit Wiegand card reader we use is 150mA@12Vdc (50mA@12Vdc in standby mode)
    The maximum current draw for the electric door strike we use is 320mA@12Vdc in the Fail Secure mode (240mA@12Vdc in the Fail Safe mode)

    The power requirement for the DCU is 3A@12Vdc. the DCU supplies power to two readers and one lock but we will use only one reader on the DCU.
    The power requirement for the CCU is 1A@12Vdc. the CCU supplies power to one reader and one lock.

    Could you confirm that the power supply through the CCU/DCU is sufficient for the card reader (150mA@12Vdc) and the door electric strike (320mA@12Vdc in Fail Secure) and the CCU/DCU itself?

    Yes, This is confirmed.

20. **Is the 1A@12vdc power supply included with the CCU standalone? Otherwise can we use any higher power supply like 1.5A for the CCU? How many mAmps are allocated to the Lock and how many mAmps are allocated to the Reader?**

    You can only use the power supply we include with the CCU. If you use your own power supply this may damage the unit and also it will void the warranty.

    For the specification of the CCU, we provide 500 mA for the Door Lock and 200 mA for the Access Reader. This supports your needs.

21. **The distance between the furthest controlled door AND our IT Room where the Door Control Unit (DCU) will be, is 200 feet maximum.**
    So the maximum total length of the electrical circuit is 2*200 feet=400 feet maximum (121.92 meters)

    Please keep in mind that we want to install the DCU as well as other the CCU in the IT Room at the same place as the centralized UPS backup.

    We have installed 6-conductor 18 AWG cable for the card readers.
    We have installed 2-conductor 16 AWG cable for the electric door strike.

    To convert these multi-conductor cables into RJ45 plugs we will use this kind of breakout board which accepts up to 16 AWG wire sizes:
    http://www.winfordeng.com/products/brk8p8c.php

    Your team has already sent the new wiring diagram for the card reader and the lock connections after we sent you the digrams from the reader and lock supplier.

    These RJ45 convertor boards will be installed not far from the DCU and CCU with approx. 3 feet 24 AWG CAT6 patch cables (~1 meter)

    According to the maximum total length of the electrical circuit (400 ft or 120 meters) and the fact that we will use 2 kinds of cables for the door lock (3 feet of 24 AWG CAT6 patch cable then 200 feet of 16 AWG 6-conductor) do you see any problem such as potential voltage drop that would prevent the entire system from working?

For the Card Readers, there is no problem. You use 18 AWG according to the Wiegand Standard. The communication distance is more than 100 Meters.

For the Door Lock, we estimate that if the load of 320mA is connected to a 16 AWG, at 122 Meters plus the 24 AWG 2 at meters the total voltage drop is only 4.73%. So this should be fine for the door locks.

Our engineer did want to highlight some key issues and instructions you should follow for the installation.

When using a strike type door lock. Please put the diode close to the door lock and make sure that it is connected to the correct polarity. This type of door lock generates a large amount of EMI.

As you want to connect a door lock directly to the DCU over your converter, by wiring with only two 16 AWG Cables, you will lose other signals such as door status.

Please see the chart on the following page.

DOOR's JR45 pin	Description
1	Door status
2	Tamper status
3	Exit Request
4	Door Lock Power
5	Buzzer
6	-
7	12V
8	GND

You will need to wire 16 AWG to PIN's 4 and 8. In addition to this you will need to short PIN 2 to PIN 8 to disable the tamper alarm.

This concludes the DCU user manual.

Please contact support@akcp.com if you have any further technical questions or problems setting up your modem or your alerts.

Thanks for Choosing AKCess Pro!